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First session
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Agenda item 6

DRAFT REPORT OF THE AD HOC WORKING GROUP ON INTERRELATIONSHIP BETWEEN
INVESTMENT AND TECHNOLOGY TRANSFER ON ITS FIRST SESSION

Held at the Palais des Nations, Geneva,
from 25 to 29 January 1993

Rapporteur: Mr. Carlos Correa (Argentina)

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INTRODUCTION

1. The Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer, established in accordance with paragraph 79 of the Cartagena Commitment, held its first session at the Palais des Nations, Geneva, from 25 to 29 January 1993*. In the course of the session, the Working Group held plenary meetings.

Opening statement

2. The Deputy to the Secretary-General of UNCTAD recalled that the Cartagena Commitment recognized the link between technological capability and social and economic development. It particularly stressed that national technology policies required a proper policy framework to promote entrepreneurship and encourage technological transfers including through foreign investment. Stress was also laid on incentives for domestic capacity-building and innovation, and developed countries were called upon to facilitate access to technology by developing countries. Other new areas of attention included the technological requirements of countries undergoing the process of transition to market economies.

3. Accordingly, the terms of reference of the Ad Hoc Working Group raised a number of substantive issues such as the linkage between investment and transfer and development of technology, the contribution of foreign direct investment (FDI) to the transfer of technology, the implications of the protection of intellectual property rights for investment, the impact of technological change on trade competitiveness and national capacities for innovation and adaptation, and the transfer and development of environmentally sound technologies which have an impact on competitiveness and development.

4. The material prepared by the secretariat highlighted only some of the main issues in a desire to stimulate discussion in the Working Group in its elaboration of the work programme for the coming months. It also outlined possibilities for carrying out the work. It was, however, up to the experts to identify the priority areas on which to concentrate, and to decide on the time-table for future sessions as well as on work methods. He hoped that the

* For the terms of reference of the Ad Hoc Working Group, see Trade and Development Board decision 398 (XXXVIII), annex C.

work of the Group would culminate in a major report on the state-of-the-art in the area of investment and technology questions, including recommendations for action by governments, non-governmental actors and the international community as a whole.

Presentations made by specially invited experts at the 1st meeting, on 25 January 1993

5. Professor Charles Cooper, Director of the Institute of New Technologies (INTECH), United Nations University, referred to three main issues: (i) the evolution in the process of industrial competition; (ii) how problems of competition related to industrialization policies in developing countries; and (iii) implications for policy-making. There had been important shifts in the concept of competition, which had moved from a concept based on cost minimization with given technologies (price competition) to one based on continuously changing technologies in processes and products (innovative competition). The latter focused on the processes of technological learning within firms. Certain firms, by accumulating technological knowledge, were able to attain, and sometimes maintain, dominant positions in the market. Innovative competition, also drew attention to the long-term nature of this process of learning within the firm. It was the firm's history that determined its capabilities and competitive position, including its future perspectives. Thus, there was a whole range of firms at any one time within the same industry: the innovative firms, which initiated technology, but which constituted only a very small number in the industry; the imitative firms, which were the majority; and finally the laggards, which stayed technologically behind and could not compete in this new environment.

6. As to industrial policies in developing countries, nowadays they were mediated by two very important situations - by the emergence of innovative competition and by the opening of the economy. The rules of the game of industrialization policy had distinctly changed. One critical outcome was that industrialization was no longer simply a process of building up a protected national industrial base; rather, it was increasingly a process of achieving entry into the world industry, which was a very different objective from that of import substitution within a protected market. If the process were to be sustained, it required almost always the accumulation of technological capabilities within the firm. That was a far more important priority in modern industrial systems than it had ever been in the import-substituting economies of the past.

7. At the same time, the more innovative the industry, the more internalized forms of technology transfer were to be expected (i.e. FDI). A central theme of industrialization policy would increasingly become the terms under which imitation could be accomplished in developing countries' industries, either through foreign direct investment or other modes of technology transfer. Another important policy issue resulted from the impact that different methods of imitating had on the processes of technological capability accumulation.

8. As for policies, it should first be borne in mind that there was a spectrum of industries of different degrees of innovativeness and also countries with limited technological capabilities. The real windows for entry into the world market for the latter were in non-innovative and relatively less innovative sectors. However, the low-technology spectrum of industries was narrowing down. The fact that modern technology systems were spreading even in old non-innovative sectors raised very serious problems for industrial policy in technologically weak countries.

9. In this environment, the role of the State would be to encourage mechanisms of technology transfer that were more consistent with local capabilities (i.e. mechanisms of imitation). Not much was known about this subject because, within the import substitution system, it was not sufficiently focused on. States would also be very concerned with methods of developing technological capability. This required an emphasis on technical education and on the understanding of learning processes within firms. Finally, the State in many countries would seek selective forms of intervention to support those firms that were entering innovative world industries (the modern version of infant industry protection).

10. Mr. Juan Rada, Vice-president (Strategic Alliances), Digital Equipment Corporation International (Europe), addressed three major issues that affected competition policies: (i) the clustering of technologies and strategic alliances; (ii) the role of capital markets in shaping investment and innovation capabilities; and (iii) technology as an increasingly important factor of protectionism after the Uruguay Round. With regard to point (i) he said that today there were clusters of technologies rather than individual technologies, a situation which rendered the management of technology more complex. Companies could no longer operate as single entities within an industry since they required simultaneously several technologies in order to

be viable. Firms therefore formed strategic alliances and created clusters of cooperating companies. This situation raised several problems vis-à-vis competition policies within countries and internationally.

11. Furthermore, two contradictory trends - short technology cycles on the one hand and long product cycles on the other - coexisted. This also increased the complexity of the technology management.

12. With regard to point (ii) he emphasized the need to understand better how capital markets - from an equity perspective - encouraged or discouraged investment and technological capacity-building. For example, companies operating in Japan faced very different financial structures than did companies operating in the United States market. The Schumpeterian innovation theory based on entrepreneurship did not necessarily apply to Japan and Germany. The question was to explain why large companies like SONY were highly innovative and could compete very successfully on the international markets despite the fact they operated in countries which discouraged individual entrepreneurship, had highly hierarchical corporate structures, and were otherwise run by principles which went against the commonly accepted management perceptions in the United States. Part of the explanation could be found in the behaviour of equity markets. For example markets in Japan, Germany and Italy were more oriented towards investment than towards consumption; moreover, they privileged capital gains and punished dividends, a difference which was at the origin of the completely different logic in the decision-making process of companies. Moreover, the capital markets rewarded the stake holders (all of those who participate in the life of the corporation), rather than the share-holders. Banks and industry were regarded as having converging rather than conflicting interests. This enabled companies in Japan to have much higher debt-to-equity ratios than Western companies. Their cash flow permitted Japanese companies to invest in technology to a level that was not possible in Anglo-Saxon markets. Finally, extensive disclosure rules such as those applied in the United States, implied that companies were more administratively than business driven. He regretted that, conforming to World Bank recommendations, Eastern European and developing economies today were copying the Anglo-Saxon system although the Japanese and German systems had proved far more successful.

13. With regard to point (iii), he asserted that, after the Uruguay Round, protectionism was likely to be based on technological content. He predicted

that countries and regions would increasingly emphasize the technological content rather than the national content of the product. Therefore, the engineering and research capabilities promoted by foreign investment would become crucial in addition to the manufacturing capabilities.

14. Mr. Herbert Oberhänsli, Assistant for Economic Affairs to the Chairman, Nestlé S.A., referring mainly to Nestlé's experience and to the results of the survey undertaken by European industrialists, outlined the systems of cross-fertilization between economies at different stages of economic development, which stimulated the local knowledge creation in production and distribution. In this respect, the protection of brands was of the utmost significance because they stimulated product renovation. They were an international quality guarantee and a powerful instrument for market-oriented application of technical progress and for global market integration. An important aspect was the protection of intellectual property rights - not only of patents but also of trademarks. There should be adequate remuneration for brand use and for the technology transferred. He pointed out that the research activities of Nestlé, were carried out in 15 centres all over the world, 2 of them in developing countries.

15. An important impediment to technology transfer (where improvements had, however, been observed in the last six years) were the various licensing requirements that limited possible factorial access and influenced business decisions. Other impediments had been the tax system - not so much the level, but the structures - and price controls which were an important impediment to local development and to the transfer of technology. The behaviour of local private sectors was also important, particularly when it was internationally-minded. Although there had been improvements in the last few years, it was important for technology transfer that improvements should be made in a coherent manner. The countries were moving so fast that sometimes it might even be difficult for the companies to be aware of all the improvements that were taking place in all important host countries of the developing world. The changes in investment conditions in the developing world had resulted in a considerable increase in absolute terms in foreign direct investment flows, particularly in 1991 and 1992. In relative terms there was an increase in the share of the overall foreign investments in the gross fixed capital formation of these countries.

16. One important element of change had been the higher share of local private investment in overall investments, which had increased since early 1980s from 60 per cent to nearly 70 per cent. Set against the corresponding figures for the industrialized world, this change was almost a revolution. As a result, there was higher investment-efficiency and better use of available resources. This meant higher efficiency in the use of technology and local technology creation, accompanied by a higher competitive position of local companies. It should be stressed that local investment was the key to the development of any country.

17. In conclusion, he said that countries had a need for an overall strategy for technological transformation. The best reference model was to be found in the process of liberalization that had occurred in the most advanced developing countries. It was for the companies to bring additional investment to know-how creation and to linkages with the outside world.

Questions raised in connection with the expert presentations

18. In response to a question on whether it was still valid to distinguish between different European Community capital markets in the light of European monetary integration, Mr. Rada replied that this, indeed, was still one of the thorny problems that had to be resolved. In the end, the characteristics of the European equity market would depend on whether the financial capital of the EC would be Frankfurt or London. In his view, current trends indicated a bias in favour of what he called "the Rhine capitalism".

19. The representative of Colombia asked Mr. Rada how he perceived protection in local terms in a situation where capital was becoming increasingly internationalized.

20. Mr. Rada replied that historically, tariff barriers had not been reduced by an act of will of policy-makers, but rather because industries were no longer viable within national boundaries. A crucial issue today was what would be the types of mechanisms available to countries and regions after a significant tariff reduction. At present, technological capacity was a much more critical element in measuring the ability of countries to compete than was the manufacturing content. Thus, policy-makers needed to find ways - if possible in the form of a specific mechanism - of obliging international capital to shift the deployment of resources in terms of technological capacity.

21. The representative of Egypt asked why the World Bank favoured the Anglo-Saxon type of investment and whether the Anglo-Saxon capital market was more adaptable to developing countries than the Germano-Japanese model, and which corporations were better suited to adapt and absorb advanced technologies - the larger firms or the small and medium-size enterprises.

22. The representative of Chile asked whether the difference between the two types of capital markets was rooted in cultural elements or based rather on existing policies and regulations, and if and why the German and Japanese capital markets were more conducive to technological innovation.

23. Mr. Rada made two observations. First, there were many types of market economies which have had different rates of success. Thus, it was fundamental to realize that there were numerous ways to deal with the problems at hand. The crucial question was what type of capital market better served a significant process of systematic accumulation for development. The market differences were not fundamentally due to cultural or ethnic differences. It would be useful to hold a debate on the different models of market economies, focusing on the fundamental question of how each model affected different levels of accumulation of capital and innovation. He presumed, however, that developing economies were better served by capital markets that encouraged capital gains and which had an investment rather than a consumption bias.

24. The representative of Bangladesh said that the discussion on the flow of foreign direct investment and technology transfer was not of particular interest to the least developed countries as there was little foreign investment in those countries and there was no innovation in the production of commodities. Therefore, the least developed countries could not maximize benefits from the export of commodities. He pointed out that, although the LDCs were providing many incentives, FDI was not flowing to these countries. In his view, non-economic factors might be responsible for this.

25. In response to the representative from Bangladesh, who had questioned the relevance of the discussion for least developed countries and the lack of innovations in respect of commodities, Mr. Rada asserted that the history of commodities showed that natural comparative advantages had been systematically eroded by science and technology (i.e. man-made products) since the mid-1970s. This was a worldwide trend and was thus of crucial importance for developing

countries. Moreover, with the end of the cold war, geographic rather than political parameters had begun to dictate economic relationships, and this trend was expected to be more important in the future.

26. The representative of the Joint Inspection Unit wondered if the task of technology transfer could be achieved, considering that millions of dollars had already been spent by different agencies within the United Nations system to encourage the transfer of science and technology to developing countries. He also asked whether it was realistic to expect TNCs to transfer technology if this same technology could be used by their competitors to compete for market shares.

27. Professor Cooper said that low-income countries were also touched by technology issues. Any country with aspirations to competitive production in the industrial sector had to be concerned with processes of technical change. The costs of not staying efficient and competitive in an increasingly open world economy could be very high even in non-innovative sectors. With regard to building technological capacity, the first step was to build up imitative capability; the creation of innovative capacities might follow as a second step. The first step was not inferior to the second.

28. With regard to the question raised by the representative of the Joint Inspection Unit, Professor Cooper observed that it was the exception rather than the rule for innovative firms to maintain total control over their innovations. Firms privatized technology mainly in order to license or set up joint ventures. Thus, the fact that there were firms which exercised a high degree of control over innovative knowledge did not imply that this knowledge would not be available, although, it might indeed be very expensive.

29. The representative of Colombia wished to know what types of policies had served to stimulate research and development in developing countries.

Mr. Oberhänsli replied that, with regard to industrial policy, those policy changes in favour of FDI had played a positive role. He considered as detrimental situations those in which host countries had to compete with subsidies, particularly in R & D. A high share of private research, as in Japan and Switzerland, guaranteed that research was carried out in a market-oriented perspective. Access to other resources, such as credit, should also be liberalized.

30. The representatives of Norway and Bangladesh called for some differentiation in the issues confronting countries at different levels of

development. While FDI was an important vehicle for technology transfer, it was pointed out that the bulk of investment went to and from the triad United States-Europe-Japan. The share of developing countries was small and also very unevenly distributed, with the LDCs receiving less than 0.1 per cent of total flows. The importance of finding policies and measures to prevent the further economic and technological marginalization of developing countries, and specifically the least developed countries was stressed. The representative of the United States maintained that the success of the NICs in increasing investment and technology flows could hold lessons for other developing countries.

31. The Chairman offered some insights into the Japanese experience of the 1950s and 1960s which were still relevant. During this period, the Japanese Government had scrutinized incoming FDI for its technical learning effect, as well as for its consequences for existing activities, employment, and industrial organization. He stressed that the Government played an active role.

32. The representative of the United Republic of Tanzania emphasized the importance of LDC concerns, such as finding ways to industrialize, augmenting the export production of manufactured goods, and creating backward linkages with agriculture, with a view to reducing the LDCs' dependence on commodity exports. He called for foreign investment that favoured labour-intensive techniques and the use of local inputs. Moreover, he expressed the view that transfer of technology to developing countries should take place on concessional terms.

33. The representative of Brazil inquired whether Nestlé's research centres mainly carried out product adaptation or whether they also did fundamental research. Moreover, he was interested in the criteria for the choice of location of these centres. Mr. Oberhänsli replied that research in Nestlé's two centres in developing countries was mostly applied, but that some fundamental research was also taking place. As vital criteria for the choice of location, he listed the existing operations in place, skilled local personnel, and regulations which did not inhibit the in- and out-flows of research outcomes. With regard to policy on the transfer of technology, he stated that Nestlé did not confine itself to transferring factories and

machines, but also invested in training local staff. He added that he favoured a country-by-country rather than a general solution to the problem of attracting FDI.

34. In response to the representative of Colombia who had asked Mr. Rada to expand on the issue of environmental technology, Mr. Rada said that he considered environmental concerns to be the single most important stimulus for research during the 1990s. The growing emphasis on a cradle-to-grave approach required research in the area of de-manufacturing and recycling, as well as new types of technology.

35. With reference to the concerns expressed by the representative of Bangladesh, Professor Cooper said that LDCs should look at the experience of other countries, including countries such as India, in the area of technological capability-building. He cited the case of Japan, where for a long period, licensing had been given preference over FDI and technology transfer. He also stressed that high technology and innovation were not necessarily identical and that many innovations involved simple technologies.

Chapter I

ESTABLISHMENT OF THE WORK PROGRAMME OF THE WORKING GROUP

(Agenda item 3)

36. For its consideration of this item, the Ad Hoc Working Group had before it the following document:

"Issues for consideration in the establishment of the work programme" - note by the UNCTAD secretariat (TD/B/WG.5/2).

The following paper was also made available to the Working Group as a background document:

"The interrelationship between investment flows and technology transfer: an overview of the main issues" - paper prepared by Mr. Sanjaya Lall, Oxford University Institute of Economics and Statistics, in cooperation with the UNCTAD secretariat (UNCTAD/ITD/TEC/1).

[This chapter is continued in TD/B/WG.5/L.1/Add.1]

Chapter II

ORGANIZATIONAL MATTERS

A. Opening of the session

(i) The first session of the Ad Hoc Working Group was opened on 25 January 1993 by the Deputy to the Secretary-General of UNCTAD, who made an introductory statement (see paras.)

B. Election of officers

(Agenda item 1)

(ii) At its first meeting, on 25 January 1993, the Ad Hoc Working Group elected its officers as follows*:

<u>Chairman:</u>	Mr. Masafumi Nagao	(Japan)
<u>Vice Chairmen:</u>	Mr. Paul Pennell Buck	(United Kingdom of Great Britain and Northern Ireland)
	Mr. Syed Jamaluddin	(Bangladesh)
	Mr. Euvgeni Manakine	(Russian Federation)
	Mr. Msuya Mangachi	(United Republic of Tanzania)
	Mr. Soenaryo Danusaputro	(Indonesia)
<u>Rapporteur:</u>	Mr. Carlos Correa	(Argentina)

C. Adoption of the agenda and organization of work

(Agenda item 2)

(iii) At the same meeting, the Working Group adopted the provisional agenda circulated by the UNCTAD secretariat (TD/B/WG.5/1). The agenda for the first session therefore read as follows:

1. Election of officers
2. Adoption of the agenda and organization of work
3. Establishment of the work programme of the Working Group
4. Provisional agenda for the second session of the Working Group
5. Other business
6. Adoption of the report of the Working Group to the Board.

* In accordance with the decision taken by the Trade and Development Board at the first part of its thirty-ninth session, the officers elected at the first session of the Ad Hoc Working Group are to remain in office for the duration of the life of the Working Group.

D. Provisional agenda for the second session of the Working Group

(Agenda item 4)

(To be completed)

E. Other business

(Agenda item 5)

(To be completed as appropriate)

F. Adoption of the report of the Working Group to the Board

(Agenda item 6)

(To be completed)

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